

What is claimed is:

1. ✓ An isolated TGF-beta receptor fusion protein that competitively inhibits binding of TGF-beta to TGF-beta receptor.

5

2. The fusion protein of claim 1, comprising TGF-beta Type II receptor linked to a second protein that is not a TGF-beta Type II receptor.

10

3. The fusion protein of claim 2, wherein the second protein is a constant region of an immunoglobulin.

4. The fusion protein of claim 3, comprising SEQ ID NO: 8 or SEQ ID NO.: 9.

5. ✓ An isolated TGF-beta receptor fusion protein comprising amino acids 1 to 160 of SEQ ID NO: 8.

6. ✓ An isolated TGF-beta receptor fusion protein comprising amino acids 1 to 160 of SEQ ID NO: 9.

20

7. The isolated protein of claims 5 or 6, wherein the amino acids are linked to at least a portion of a constant region of an immunoglobulin.

25

8. An isolated polynucleotide encoding, on expression, for an TGF-beta Type II receptor linked to a second protein that is not a TGF-beta Type II receptor.

25

9. The isolated polynucleotide of claim 8, selected from the group consisting of:

(a) SEQ ID NOS.: 10 or 12; (b) a polynucleotide that hybridizes to the foregoing sequence under standard hybridization conditions and that encodes a protein having the TGF-beta inhibitory activity of a TGF-beta Type II receptor fusion protein; and (c) a polynucleotide that codes on expression for a protein encoded by any of the foregoing polynucleotide sequences.

-63-

10. A composition comprising a TGF-beta receptor fusion protein in a pharmaceutically acceptable carrier, the fusion protein in an amount sufficient to competitively inhibit binding of TGF-beta to a TGF-beta ligand.
- 5 11. A vector comprising the polynucleotide sequence of claim 9.
12. A host cell containing the vector of claim 11.
13. A method for producing a TGF-beta receptor fusion protein, comprising culturing the host cell of claim 12, allowing said cell to express the fusion protein, isolating and purifying the fusion protein.
14. A method for lowering the levels of TGF-beta in an individual in need thereof which comprises administering to said individual a TGF-beta-lowering amount of a TGF-beta antagonist that is a TGF-beta receptor fusion protein comprising the sequence of amino acids of SEQ ID NOS: 8 or 9.
15. A method for lowering the levels of TGF-beta in an individual having arthritis, which comprises administering to said individual an effective amount of a TGF-beta antagonist that is a TGF-beta receptor fusion protein comprising the sequence of amino acids of SEQ ID NOS: 8 or 9.
16. A method for treating an individual for a medical condition associated with TGF-beta overproduction comprising the step of administering to the individual a TGF- beta Type II receptor fusion protein having an amino acid sequence shown SEQ ID NOS: 8 or 9 in an amount sufficient to reduce the activity of TGF- beta in said individual.
17. The method of claim 16, wherein the TGF- beta receptor fusion protein is administered by a method selected from the group consisting of intravenous, intraocular, intraarticular, transdermal, and enteral administration.
18. The method of claim 16, wherein said medical condition comprises a fibroproliferative disorder.

-64-

19. The method of claim 18, wherein said fibroproliferative disorder comprises a fibrosis selected from the group consisting of kidney, intraocular, and pulmonary fibrosis.
20. The method of claim 18, wherein said fibroproliferative disorder is selected from the group consisting of diabetic nephropathy, glomerulonephritis, proliferative vitreoretinopathy, and myelofibrosis.
- 5 21. The method of claim 18, wherein said fibroproliferative disorder is a collagen vascular disorder selected from the group consisting of systemic sclerosis, polymyositis, scleroderma, dermatomyositis, or systemic lupus erythematosus.

*Add C'*

CONFIDENTIAL - SECURITY INFORMATION